

US007834586B2

# (12) United States Patent

Fischer et al.

#### (54) MULTIFUNCTIONAL CHARGER SYSTEM AND METHOD

(75) Inventors: **Daniel M. Fischer**, Waterloo (CA); **Dan** 

G. Radut, Waterloo (CA); Michael F. Habicher, Cambridge (CA); Quang A. Luong, Kitchener (CA); Jonathan T.

Malton, Kitchener (CA)

(73) Assignee: Research in Motion Limited, Waterloo,

Ontario (CA)

(\*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

This patent is subject to a terminal dis-

claimer.

(21) Appl. No.: 12/714,204

(22) Filed: Feb. 26, 2010

(Under 37 CFR 1.47)

(65) **Prior Publication Data** 

US 2010/0148724 A1 Jun. 17, 2010

#### Related U.S. Application Data

- (63) Continuation of application No. 12/268,297, filed on Nov. 10, 2008, now Pat. No. 7,737,657, which is a continuation of application No. 11/749,680, filed on May 16, 2007, now Pat. No. 7,453,233, which is a continuation of application No. 11/175,885, filed on Jul. 6, 2005, now Pat. No. 7,239,111, which is a continuation of application No. 10/087,629, filed on Mar. 1, 2002, now Pat. No. 6,936,936.
- (60) Provisional application No. 60/273,021, filed on Mar. 1, 2001, provisional application No. 60/330,486, filed on Oct. 23, 2001.

(51) **Int. Cl.** *H01M 10/46* 

 (10) Patent No.:

US 7,834,586 B2

(45) **Date of Patent:** 

\*Nov. 16, 2010

(58) Field of Classification Search ...... 320/107,

320/111, 114, 140

See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

3,775,659 A 11/1973 Carlsen, II

(Continued)

FOREIGN PATENT DOCUMENTS

EP 0684680 B1 7/1999

(Continued)

OTHER PUBLICATIONS

Electric Double-Layer Capacitors, vol. 2, Japan, Tokin Corporation, Cat. No. EC-200E, Oct. 25, 1996, 40 pgs.

(Continued)

Primary Examiner—Edward Tso

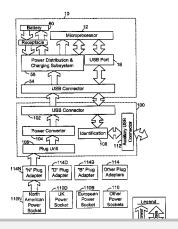
(74) Attorney, Agent, or Firm—Conley Rose, P.C.; J. Robert

Brown, Jr.

(57) ABSTRACT

An adapter for providing a source of power to a mobile device through an industry standard port is provided. In accordance with one aspect of the invention, the adapter comprises a plug unit, a power converter, a primary connector, and an identification subsystem. The plug unit is operative to couple the adapter to a power socket and operative to receive energy from the power socket. The power converter is electrically coupled to the plug unit and is operable to regulate the received energy from the power socket and to output a power requirement to the mobile device. The primary connector is electrically coupled to the power converter and is operative to couple to the mobile device and to deliver the outputted power requirement to the mobile device. The identification subsystem is electrically coupled to the primary connector and is operative to provide an identification signal.

#### 13 Claims, 4 Drawing Sheets

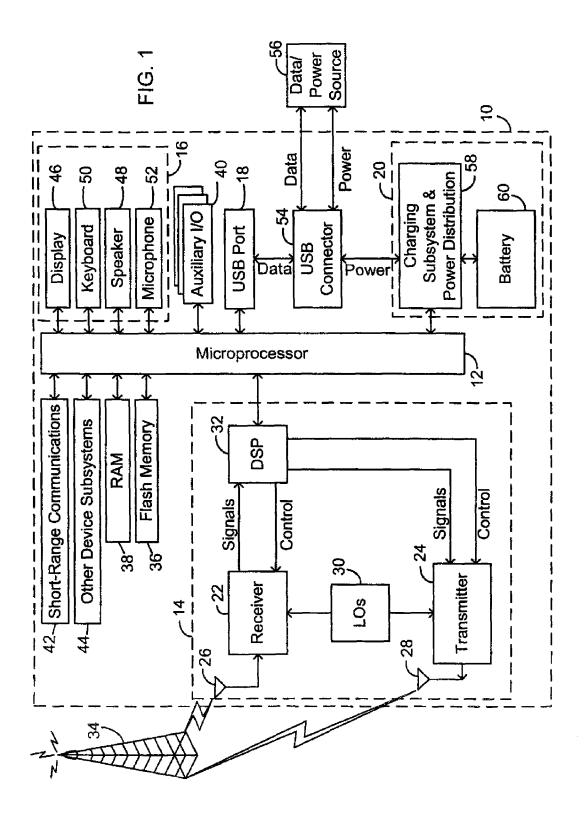




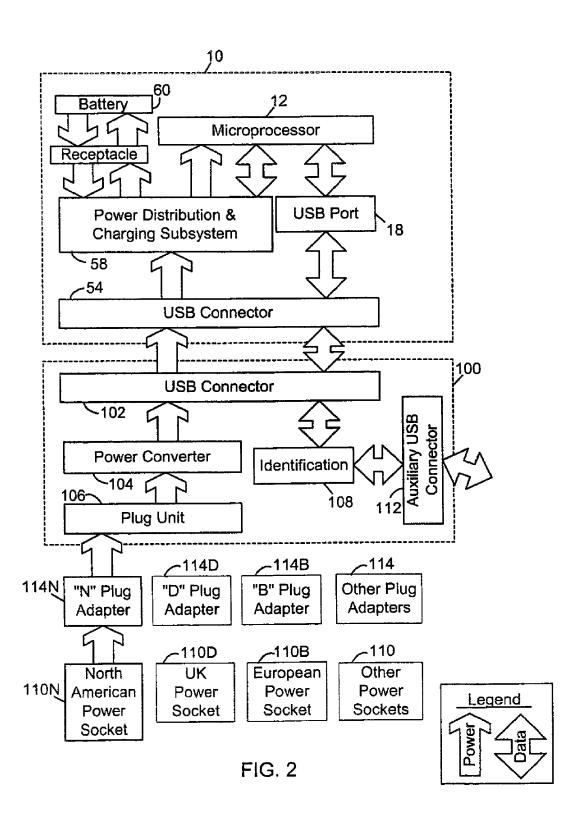
# **US 7,834,586 B2**Page 2

U.S.	PATENT	DOCUMENTS	6,252,375 B1 6/2001 Richter et al. 6,255,800 B1 7/2001 Bork
4,433,251 A	2/1984	Banks et al.	6,283,789 B1 9/2001 Tsai
4,510,431 A	4/1985	Winkler	6,397,696 B2 6/2002 Ogami
5,173,855 A	12/1992	Nielsen et al.	6,668,296 B1 12/2003 Dougherty et al.
5,229,649 A	7/1993	Nielsen et al.	6,738,856 B1 5/2004 Milley et al.
5,272,475 A		Eaton et al.	7,170,259 B2 1/2007 Veselic
5,444,378 A	8/1995	Rogers	2006/0181241 A1* 8/2006 Veselic
5,631,503 A	5/1997		2007/0108938 A1* 5/2007 Veselic
5,638,540 A	6/1997	Aldous	2009/0128091 A1* 5/2009 Purdy et al 320/106
5,651,057 A	7/1997	Blood et al.	·
5,769,877 A	6/1998	Barreras, Sr.	FOREIGN PATENT DOCUMENTS
5,850,113 A	12/1998	Weimer et al.	EP 1198049 A1 4/2002
5,939,860 A	8/1999	William	WO 200101330 A1 1/2001
6,006,088 A	12/1999	Couse	WO 200101330 A1 1/2001
6,104,162 A	8/2000	Sainsbury et al.	OTHER PUBLICATIONS
6,104,759 A	8/2000	Carkner et al.	
6,130,518 A	10/2000	Gabehart et al.	Supercapacitor: User's Manual, vol. 2, Japan, Tokin Corporation,
6,138,242 A	10/2000	Massman et al.	Jan. 1997, 47 pgs.
6.184.652 B1	2/2001	Yang	Charging Big Supercaps, Portable Design, Mar. 1997, p. 26.
6,211,649 B1	4/2001	Matsuda	* cited by examiner











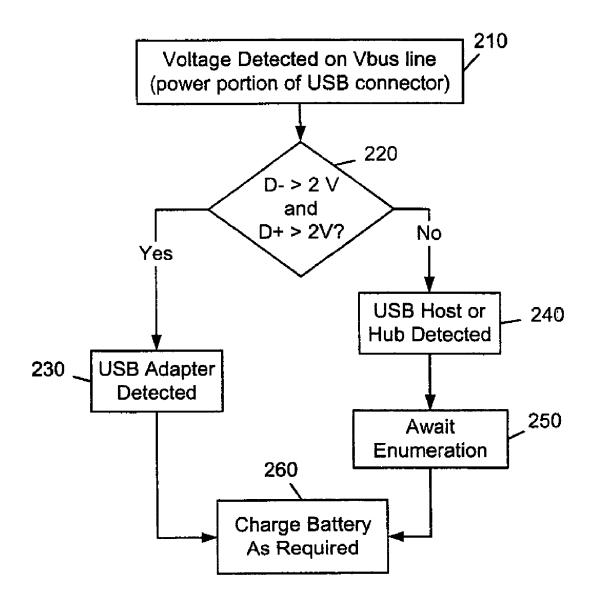


FIG. 3

# DOCKET

# Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

# **Real-Time Litigation Alerts**



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

# **Advanced Docket Research**



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

# **Analytics At Your Fingertips**



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

### API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

### **LAW FIRMS**

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

### **FINANCIAL INSTITUTIONS**

Litigation and bankruptcy checks for companies and debtors.

## **E-DISCOVERY AND LEGAL VENDORS**

Sync your system to PACER to automate legal marketing.

